

This listing of claims replaces all prior versions of claims in the Application.

Listing of Claims

Claim 1. (Original) An electronic device comprising a first dielectric layer comprising a first removable material, and a second dielectric layer comprising a second removable material.

Claim 2. (Original) The electronic device of claim 1 further comprising an etch differentiating layer disposed between the first dielectric layer and the second dielectric layer.

Claim 3. (Original) The electronic device of claim 2 wherein the etch differentiating layer comprises a third removable material.

Claim 4. (Original) The electronic device of claim 1 wherein at least one of the first removable material and second removable material comprises cross-linked polymeric particles.

Claim 5. (Original) The electronic device of claim 1 wherein the first dielectric layer and the second dielectric layer have an etch differential of at least 1:2.

Claim 6. (Original) The electronic device of claim 1 wherein both the first dielectric layer and the second dielectric layer are inorganic.

Claim 7. (Original) The electronic device of claim 1 further comprising a third layer on the second layer, wherein the third layer is inorganic.

Claim 8. (Original) The electronic device of claim 7 wherein the third layer comprises a fourth removable material.

Claim 9. (Original) The electronic device of claim 9 wherein the third layer has sufficient porosity to allow for removal of the first removable material and the second removable material through the third layer.

Claim 10. (Withdrawn and Previously Presented) A method of manufacturing the electronic device of claim 25 comprising the steps of: a) disposing on a substrate a layer of a first organic polysilica dielectric material comprising a first removable material; b) disposing a layer of a second organic polysilica dielectric material on the first organic polysilica dielectric material layer, wherein the second organic polysilica dielectric material comprises a second removable

material; and c) subjecting the substrate to conditions which at least partially remove the first and second removable materials.

Claim 11. (Withdrawn and Previously Presented) The method of claim 10 further comprising the step of disposing an etch stop layer between the layer of first organic polysilica dielectric material and the layer of second organic polysilica dielectric material.

Claim 12. (Withdrawn) The method of claim 11 wherein the etch stop layer comprises a third removable material.

Claim 13. (Withdrawn) The method of claim 10 wherein at least one of the first removable material and second removable material comprises a cross-linked polymeric particles.

Claim 14. (Withdrawn and Previously Presented) The method of claim 10 wherein the layer of first organic polysilica dielectric material and the layer of second organic polysilica dielectric material have an etch differential of at least 1:2.

Claim 15. (Withdrawn and Previously Presented) The method of claim 10 further comprising the step of disposing a third layer on the second organic polysilica dielectric material layer, wherein the third layer is inorganic.

Claim 16 (Withdrawn) The method of claim 15 wherein the third layer comprises a fourth removable material porogen.

Claim 17. (Withdrawn) The method of claim 15 wherein the third layer has sufficient porosity to allow for removal of the first removable material and the second removable material through the third layer.

Claim 18. (Withdrawn and Previously Presented) A method of manufacturing the electronic device of claim 26 comprising the steps of: a) disposing on a substrate a layer of a first dielectric material comprising a first removable material; b) disposing a layer of a second dielectric material on the first dielectric material layer, the second dielectric material comprising a second removable material; c) patterning the layers of both the first and second dielectric materials to provide apertures; d) vapor depositing a barrier layer on surfaces of the first and second dielectric materials within the apertures; and e) depositing a metal into the apertures; wherein the first

removable material and the second removable material have active sites suitable for providing a barrier layer.

Claim 19. (Withdrawn) The method of claim 18 wherein the active sites are chosen from carboxylate groups, amine groups, imine groups, oxime groups, hydroxy groups, aldehydes groups, disulfide groups, thiol groups and combination thereof.

Claim 20. (Withdrawn and Previously Presented) A method of manufacturing the structure of claim 21 comprising the steps of: a) disposing on a substrate a layer of a dielectric material; b) patterning the dielectric material layer to provide apertures; c) depositing a barrier layer in the apertures; d) depositing copper in the apertures to fill the apertures; e) planarizing the copper; and f) selectively depositing a barrier layer on the surface of the copper.

Claim 21. (Withdrawn and previously Presented) A structure comprising a substrate; a dielectric layer disposed on a surface of the substrate, the dielectric layer comprising apertures extending from a top surface of the dielectric layer downwardly into the dielectric layer; copper disposed in the apertures and having a top surface substantially planar with the top surface of the dielectric layer; and a barrier layer selectively disposed on the top surface of the copper.

Claim 22. (Withdrawn) A multilayer structure comprising a substrate, a porous dielectric layer disposed on the substrate, a porous third layer and an air gap layer disposed between the porous dielectric layer and the porous third layer.

Claim 23. (Withdrawn) A method of manufacturing the multilayer structure of claim 22 comprising the steps of disposing on a substrate a dielectric layer comprising a porogen, disposing a sacrificial material on the dielectric layer, disposing a third layer on the sacrificial material, the third layer having sufficient porosity to allow removal of the sacrificial material and the porogen through the third layer, and removing the sacrificial material and the porogen.

Claim 24. (Withdrawn) The method of claim 23 wherein the dielectric layer and the third layer are organic polysilica layers.

Claim 25. (Withdrawn) An electronic device comprising a substrate, a first porous organic polysilica dielectric material layer and a second porous organic polysilica dielectric material layer on the first porous organic polysilica dielectric material layer.

Claim 26. (Withdrawn) An electronic device comprising: a) a substrate; b) a layer of first dielectric material comprising a first removable material on the substrate; c) a layer of second dielectric material comprising a second removable material; d) apertures in both the first and second dielectric material layers; e) a barrier layer on surfaces of the first and second dielectric material layers within the apertures; and f) a metal deposit within the apertures, wherein the first and second removable materials have active sites for providing a barrier layer.